



MODIS Data Production Overview



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MODIS Science Data Support Team

8 June 2000

MODIS Science Team Meeting - 1



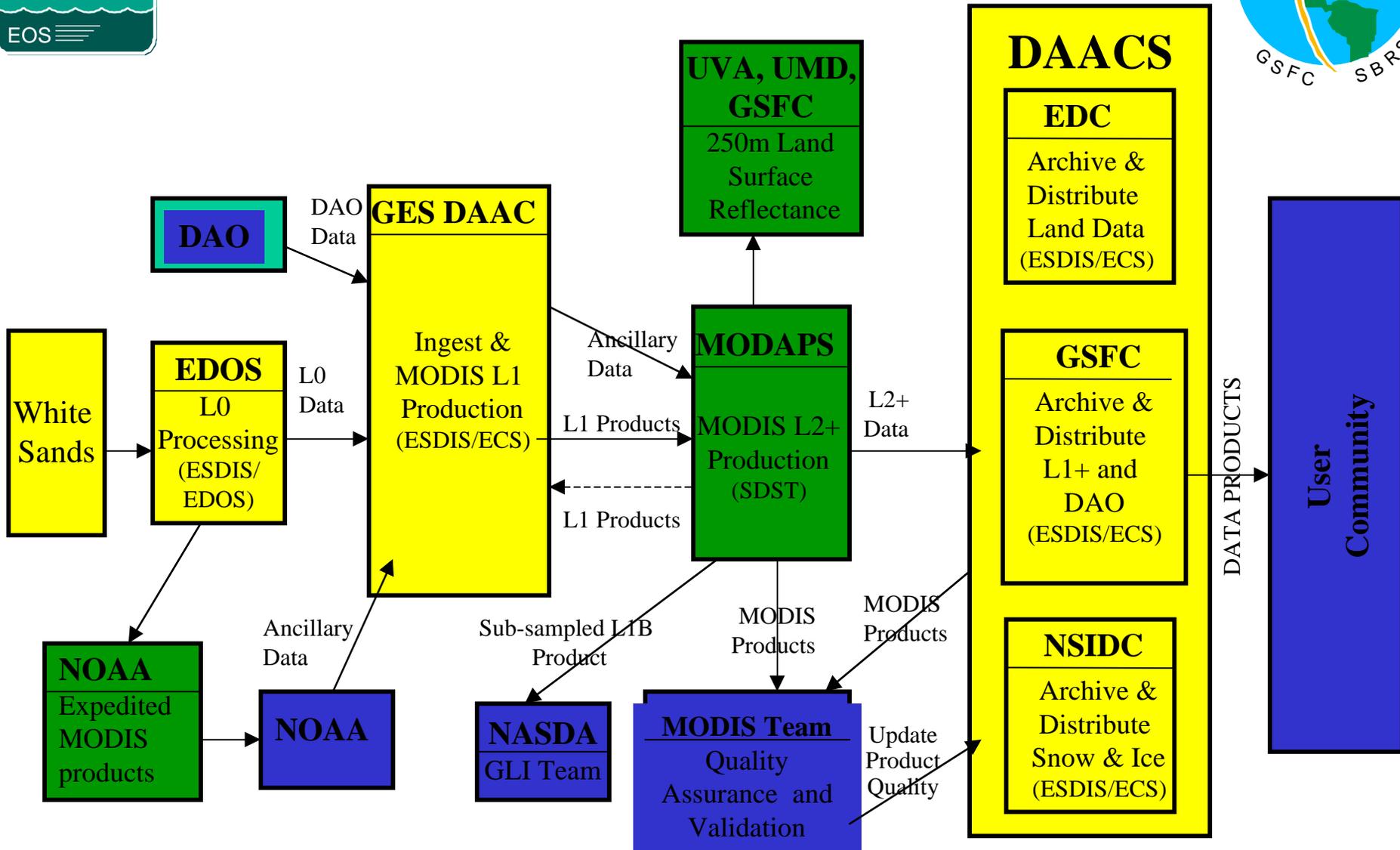
Topics



- MODIS End-to-End production flow
- Issues in the processing chain
- Production reports
- Science software and product status



MODIS Data Product Flow



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Issues in Processing Systems

- White Sands
 - Problem: Tape recorder break down (2 weeks)
 - Solution: Replace tape recorder with RAID storage
- EDOS
 - Problem: Bit Flips causes 2+ hours/day data loss (4 weeks)
 - Solution: EDOS, L1A, L1B software changes for bad packets/split scans
 - Problem: Hardware in EDOS delays catch-up (2 weeks)
 - Solution: Hardware repaired
 - 1.5x for processing means EDOS can't catch up quickly (4 weeks)
 - Solution: Improved software (Ver. C4) to be installed in Fall



Issues in Processing Systems



- GDAAC
 - Problem: Can't catch-up after downtime with only 1.2x (14 weeks)
 - Solution: MODAPS runs Cloud Mask now and more hardware is being added
 - Problem: L1A sometimes leaves gaps larger than missing L0 data
 - Solution: TBD, problem being investigated by James Kuyper
- MODAPS
 - Problem: Tape drives writing bad save sets (11 weeks)
 - Solution: Better software handling of errors in writing save sets and cleaning/alignment of Ampex tape drives
 - Problem: Human error recycling tapes led to early expiration of products
 - Solution: Review recycling, get Legato to support tape recycling in IRIX 6.5
 - Problem: Production stretching out due to days with serious gaps in Level 1
 - Solution: Improve upstream production, earlier close-out of days



Issues in Processing Systems



– PDR Server

- Problem: Peak volumes during a week are significantly higher than average daily volumes, much greater volumes sent during catch-up
- Solution: Add 1.3TB of storage to PDR server to increase buffers for product transfer from GDAAC to MODAPS (2 days) and MODAPS to DAACs (3-4 days), request additional disk be added to handle catch-up

– DAAC

- Problem: MODIS product volume exceeds ingest rate at DAACs
 - EDC ingest rate 130GB/day, MODIS desired rate 161GB/day
 - GSFC ingest rate 29GB/day, MODIS desired rate 171 GB/day
- Solution: Increase baseline for ingest via SWAMP 6/00 Data Working Group
 - Priority for ingest can be raised to accommodate > volume
 - Cost for additional hardware is low (M. Moore)
- Problem: Ingest too low to support catch-up
- Solution: Add more hardware after increased baseline is approved, suggest ingest rate of 2.5x per MODIS



Production Issue Summary



- White Sands/EDOS stability and catch-up capacity are critical for production of a time series without gaps
- GSFC DAAC does not have the processing capacity to catch-up from down-time within the 2 week window for MODAPS production of 8 and 16 day products
- Ingest rates at DAACs are too low for MODIS desired baseline volumes for higher level science products
 - Ingest rate of 2x at DAACs is needed for catch-up

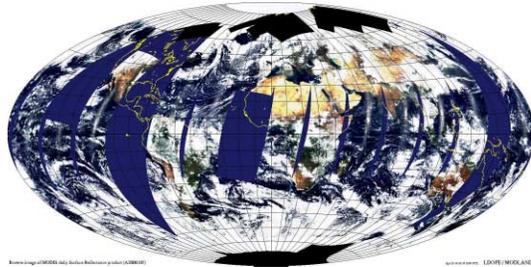


Production Reports

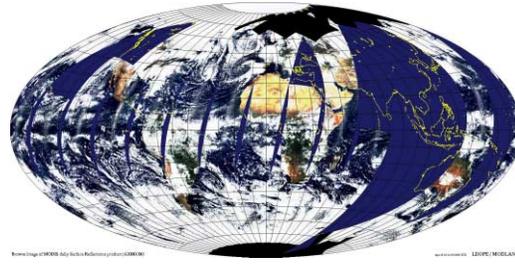
- Tic-Tac-Toe chart (granules, tiles by data day)
- Global coarse resolution surface reflectance (8-days)
- Daily production of higher level products (RYG chart)
- Detailed production and ingest reports, MODAPS, DAACs
- Notes from daily production meetings



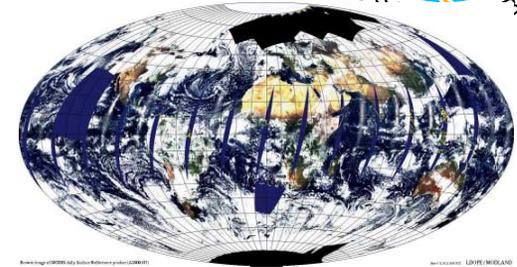
Land Surface Reflectance Week 8 (Days 105-112)



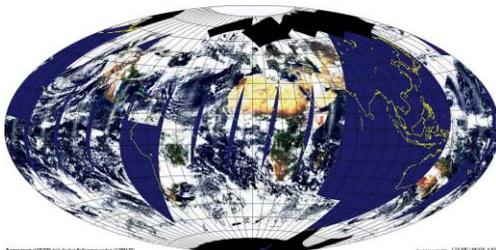
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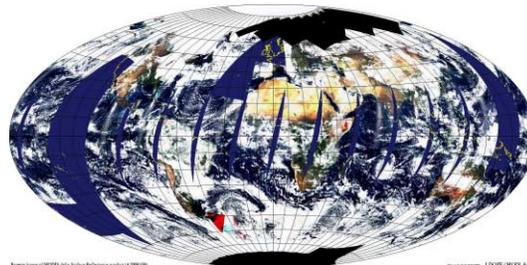
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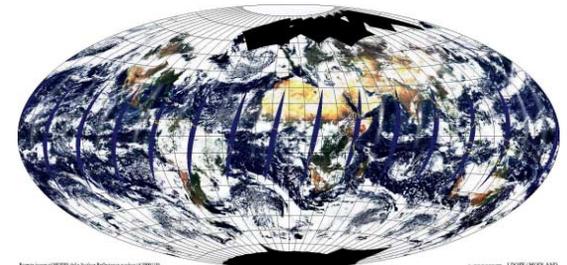
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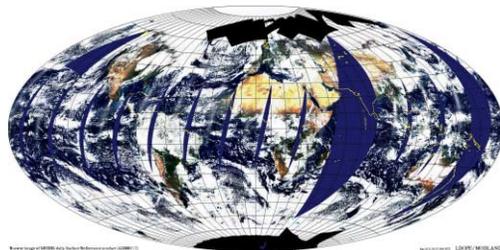
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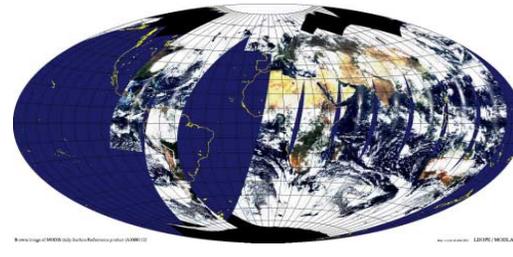
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Daily production status



STATUS OF DAY		Week 12							
		Open GDAAC	Closed	Closed	Closed	Closed	Closed	Closed	Closed
		137	138	139	140	141	142	143	144
		16-May	17-May	18-May	19-May	20-May	21-May	22-May	23-May
	EDOS and FDD	3 hours 40 minutes missing of AM1EPHNO		Missing 1 hour 55 minutes ephemeris	Missing 2 hours attitude	Missing 5 hours 30 minutes L0 plus ancillary data	Missing 1 hour 55 minutes orbit #	Missing 2 hours L0	
	L1A, L1B, cloud mask and profiles	20 hours of L1 missing	Missing 1 hour 20 minutes L1	Missing 3 hours 45 minutes L1	Missing 2 hours 55 minutes L1	Missing 14 hours L1	Missing 3 hours 30 minutes of L1	Missing 4 hours 45 minutes L1	Lost 20 minutes of PGE01, and an additional 35 minutes of L1B
MD1	Cloud Mask								
MLDL1-L3	Land L2								
MDL4	Surf Temp								
MDL5, 5P	Land L3 Daily								
MDL10	Land L3 Weekly								
MDL12	Land L3 16 days								
MDA1	Atmosphere L2								
MDA2, MDA3	Atmos L3 Daily								
MDA4	Atmos L3 8day								
MDA5	Atmosphere 30 day								
MDO1	Oceans L2								
MDO2	Oceans PGE20								
MOD03	Oceans PGE 49,50								
MD04	Oceans Daily								
MD04	Oceans Weekly								

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Science Software Status



- “At-launch” PGEs are in production (50 PGEs)
- Remaining Terra products for 2000:
 - Ocean -> Productivity (PGE 51 and 52)
 - Atmosphere -> Clear Sky Radiance (PGE 55)
 - Land -> 30 day, quarterly, yearly, Climate Modeling Grid (PGE 46, 67 and 68 plus others), 250m products (PGE 66)
- Aqua products for 2001:
 - Oceans -> Merged Terra/Aqua L3 products
 - Land -> Snow and Ice products



Science Software Status



- Insert and Order Status
 - Level 1 products -> insert and order OK
 - Atmosphere products-> insert and order OK
 - Ocean products
 - Level 2
 - SST product OK,
 - Ocean Color minor metadata problem on order
 - Level 3
 - most are still being tested by GDAAC, some PSAs missing
 - Land products
 - Successful insert for Level 2 and most Level 3 products
 - Some NPP and most Monthly, Quarterly products have not been tested
 - Successful order for Level 2 and Daily
 - 8 day and longer products need confirmation of search/order